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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/811,475

03/24/2004

Michael Hansen

HK-0795

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LERNER GREENBERG STEMER LLP
P O BOX 2480
HOLLYWOOD, FL 33022-2480

EXAMINER

PARK, SOO JIN

ART UNIT

PAPER NUMBER

2624

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/811,475	Applicant(s) HANSEN ET AL.	
	Examiner SOO JIN PARK	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-14 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-14 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/27/2009 has been entered and the action follows:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honma (USPN 6,002,845) in view of Gindele (USPN 6,907,144).

Regarding **claim 1**, Honma discloses:

quantizing the binary image data with n bits, wherein $n > 1$ (see column 5 lines 43-47, quantizing one-bit image data into 8-bit image data);

filtering the quantized image data with a low-pass filter having a filter window smaller than a screen cell (see column 5 lines 43-54, averaging only nearby pixels to convert the 8-bit image data into a smooth image); and

obtaining corrected quantized image data from the filtered image data with a threshold value operation (see column 5 lines 54-57, using LUT to adjust the smooth image).

Honma fails to disclose:

providing the low-pass filter with an asymmetrical distribution of filter coefficients with respect to the filter window; and

obtaining the asymmetrical distribution of the filter coefficients from a symmetrical filter by shifting a filter function by fractions of an image point, said fractions being less than 1, and obtaining further coefficients for the asymmetrical distribution by using the same filter function as used for obtaining symmetrical distributions.

In a similar field of endeavor, Gindele teaches:

providing the low-pass filter with an asymmetrical distribution of filter coefficients with respect to the filter window (see column 6 line 35 through column 7 line 5, column 8 line 63 through column 9 line 2, and figures 8 and 10, an averaging filter with an asymmetrical distribution of filter coefficients with respect to a region 16); and

obtaining the asymmetrical distribution of the filter coefficients from a symmetrical filter by shifting a filter function by fractions of an image point, said fractions being less than 1, and obtaining further coefficients for the asymmetrical distribution by using the same filter function as used for obtaining symmetrical distributions (see figures 8 and 10, wherein the asymmetrical filter shown in figure 10 has the same pattern of angles for coefficients and is a shifted version of a symmetrical filter in figure 8, wherein such shifting is a fraction of a region 16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Honma with Gindele, which is in a similar field of endeavor of low-pass filtering an image, and provide an asymmetrical low-pass filter having coefficients in a pattern of a shifted symmetric filter, as taught by Gindele, for the purpose of reducing computation time for noise reduction (see Gindele column 3 lines 46-56), and forming a somewhat random pattern of pixels that still meet the requirement of a sparsely sampled array (see Gindele column 9 lines 9-13).

Regarding **claim 5**, Honma and Gindele disclose everything claimed as applied above (see claim 1).

Regarding **claim 14**, Honma and Gindele disclose everything claimed as applied above (see claim 1), however, Honma and Gindele fail to explicitly disclose:

the quantized binary image data forms a plateau having vertical flanks; and
in the three dimensional representation, the slopes of the vertical flanks are reduced by the filtering.

Honma suggests: the quantized binary image data forms a plateau having vertical flanks; and in the three dimensional representation, the slopes of the vertical flanks are reduced by the filtering (see figure 6, such one-bit image data and smooth image are of 2D).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to represent a 2D image in 3D (the first two dimensions corresponding to rows and columns of a 2D image and the pixel values being a third

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dimension), and also recognize that adjacent pixels with the same pixel values form a vertical flank, for the purpose of providing a convenient visual representation to a user.

Claims 6-11 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honma and Gindele in view of Sanger (USPN 6,717,601).

Regarding **claims 6 and 17**, Honma and Gindele disclose everything claimed as applied above (see claims (1 and 14), however, Honma and Gindele fail to disclose carrying out the threshold value operation with a threshold value selected as a function of the local gray value and of the desired correction magnitude.

In a similar field of endeavor, Sanger teaches carrying out the threshold value operation with a threshold value selected as a function of the local gray value and of the desired correction magnitude (see column 9 line 51 through column 10 line 9, threshold values are selected as a function of local average gray value and of the desired dot gain).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Honma and Gindele with Sanger, which is in a similar field of endeavor of descreening a binary image (see Sanger column 6 lines 13-15), and select threshold values as a function of the local gray value and of the desired correction magnitude, as taught by Sanger, for the purpose of optimizing the process of adding dot-gain while maintaining dot fidelity (see Sanger column 5 lines 56-61).

Regarding **claims 7 and 18**, Sanger further teaches storing threshold values in a threshold value table (see column 9 line 51 through column 10 line 9, a table of threshold is computed).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made store threshold values in a threshold value table, as taught by Sanger, for the purpose of optimizing the process of adding dot-gain while maintaining dot fidelity (see Sanger column 5 lines 56-61).

Regarding **claim 8**, Honma, Gindele, and Sanger disclose everything claimed as applied above (see claims 6 and 7).

Regarding **claims 9, 10, 11, 19, and 20**, Sanger further teaches determining a threshold value function $T1=f1(G,dG)$ empirically based upon model screen dots and obtaining a threshold value function $T2=f2(G,dG)$ therefrom with approximation functions (see column 9 line 51 through column 10 line 9, a function is determined relating threshold, G, and dG based on model screen dots and obtaining intermediate threshold function value points by estimation, wherein G is the input gray value and dG is dot-gain which is desired amount of correction).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine a threshold value function based on model screen dots and estimate another threshold value function, as taught by Sanger, for the purpose of adjusting binary bitmap files to make proof and print appear the same (see Sanger column 6 lines 33-36).

Claims 12, 13, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honma and Gindele in view of Loce et al (USPN 7,079,289).

Regarding **claim 12**, Honma and Gindele disclose everything claimed as applied above (see claim 1), however, Honma and Gindele fail to disclose obtaining corrected binary image data from the corrected quantized image data by quantization with 1 bit.

In a similar field of endeavor, Loce teaches obtaining corrected binary image data from the corrected quantized image data by quantization with 1 bit (see column 6 lines 35-43, printing a thresholded binary image data by 2 quantization tonal levels, i.e. black and white, therefore applying quantization with 1 bit).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Honma and Gindele with Loce, which is in a similar field of endeavor of printing binary halftone images (see Loce column 1 lines 8-10), and quantize a grayscale image with 1 bit i.e. 2 tonal levels of black and white, as taught by Loce, for the purpose of printing.

Regarding **claims 13 and 21**, Honma, Gindele, and Loce disclose everything claimed as applied above (see claims 1, 12, and 14).

Response to Arguments

Applicant's arguments with respect to claims 1, 5-14, and 17-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOO JIN PARK whose telephone number is 571-270-3569. The examiner can normally be reached on Monday - Friday 9:00 - 5:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SOO JIN PARK
SJP
Examiner
Art Unit 2624

/VIKKRAM BALI/
Supervisory Patent Examiner, Art Unit 2624